

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of removing a particle from a surface of a metal plug formed in a via comprising:
introducing a first agent to a metal layer;
polishing the metal layer with the first agent; and
after polishing the metal layer, ~~introducing~~ rinsing a surface of the metal plug with a second agent comprising hydrogen peroxide ~~to rinse the surface of the metal plug, wherein the second agent is introduced through a polisher during polishing or sprayed over the surface of the metal plug to drive at least one particle off the surface of the metal plug; and~~
~~removing at least one particle from the surface of the metal plug.~~
2. (Original) The method of claim 1, wherein polishing the metal layer comprises polishing a metal material selected from the group consisting of tungsten and copper.
3. (Original) The method of claim 1, wherein polishing the metal layer comprises polishing with the first agent having an abrasive material selected from the group consisting of silica, alumina, zirconia, and ceria.
4. (Original) The method of claim 1, wherein polishing comprises chemical mechanical polishing.
5. (Cancelled)
6. (Original) The method of claim 1, wherein introducing the second agent comprises introducing a second agent of approximately 4% by volume or less of hydrogen peroxide.
7. (Original) The method of claim 1, further comprising polishing the substrate with the second agent.
8. (Original) The method of claim 1, wherein polishing the metal layer with the second agent includes polishing with a polisher operating at a polishing pressure approximately in the range of 0.5 to 2.0 psi.
9. (Currently Amended) A method of removing at least one particle from a surface of a metal plug disposed over a substrate comprising:
depositing a slurry onto a metal layer over the metal plug;
polishing the metal layer; and

after polishing the metal layer, rinsing the surface of the metal plug with a solution comprising hydrogen peroxide, wherein rinsing is spraying the solution over the surface of the metal plug to drive at least one particle off the surface of the metal plug.

10. (Original) The method of claim 9, wherein polishing the metal layer comprises polishing a metal material selected from the group consisting of tungsten, copper, and aluminum.

11. (Original) The method of claim 9, wherein depositing the slurry further comprises depositing a slurry having an abrasive material selected from the group consisting of silica, alumina, zirconia, and ceria.

12. (Previously Presented) The method of claim 9, wherein rinsing the metal plug occurs after polishing the metal layer and substrate.

13. (Previously Presented) The method of claim 9, wherein rinsing the metal plug comprises rinsing with the solution which comprises approximately 4% by volume or less of hydrogen peroxide.

14. (Original) The method of claim 9, wherein polishing the metal layer includes removing the metal layer at a rate of approximately in the range of 40Å/minute to 80Å/minute.

15. (Original) The method of claim 9, wherein polishing comprises chemical mechanical polishing.

16. (Original) The method of claim 9, wherein rinsing occurs during polishing; and polishing comprises polishing with a polisher at a polishing pressure approximately in the range of 0.5 to 2.0 psi.

17. (Original) The method of claim 16, wherein the metal layer is removed at a rate of 60Å/minute.

18. (Currently Amended) A method comprising:
polishing a metal layer over a conductive plug with a slurry;
after polishing the metal layer, introducing a rinsing solution through a polisher during polishing or by spraying the rinsing solution onto the conductive plug to drive at least one particle off the surface of the metal plug; and
the rinsing solution comprising hydrogen peroxide.

19. (Previously Presented) The method of claim 18, further including polishing the metal layer with an abrasive material, wherein the rinsing solution is introduced after polishing of the substrate.

20. (Original) The method of claim 18, wherein introducing a rinsing solution comprises introducing a rinsing solution of approximately 4% by volume or less of hydrogen peroxide.
21. (Original) The method of claim 18, wherein introducing a rinsing solution occurs during polishing the metal layer in which a polishing pressure is used approximately in the range of 0.5 to 2.0 psi.
22. (Original) The method of claim 18, wherein a metal layer is removed at a rate of 60Å/minute.
23. (Currently Amended) A method of removing a particle from a surface of a metal plug formed in a via comprising:
introducing a first agent to a metal layer;
polishing the metal layer with the first agent; and
after polishing the metal layer, introducing a second agent consisting of an aqueous solution of hydrogen peroxide to rinse the surface of the metal plug, wherein the second agent is introduced through a polisher during polishing or sprayed over the surface of the metal plug to drive at least one particle off the surface of the metal plug.
24. (Currently Amended) A method of removing at least one particle from a surface of a metal plug disposed over a substrate comprising:
depositing a slurry onto a metal layer over the metal plug;
polishing the metal layer; and
after polishing the metal layer, rinsing the surface of the metal plug with a solution consisting of an aqueous solution of hydrogen peroxide, wherein rinsing is spraying the solution over the surface of the metal plug to drive at least one particle off the surface of the metal plug.
25. (Currently Amended) A method comprising:
polishing a metal layer over a conductive plug with a slurry;
after polishing the metal layer, introducing a rinsing solution onto the conductive plug, wherein the second agent is introduced through a polisher during polishing or sprayed over the surface of the conductive plug to drive at least one particle off the surface of the metal plug, the rinsing solution consisting of an aqueous solution of hydrogen peroxide.
26. (Currently Amended) A method of removing a particle from a surface of a metal plug formed in a via comprising:
introducing a first agent to a metal layer;
polishing the metal layer with the first agent; and

after polishing the metal layer, introducing a second agent consisting essentially of hydrogen peroxide to rinse the surface of the metal plug, wherein the second agent is introduced through a polisher during polishing or sprayed over the surface of the metal plug to drive at least one particle off the surface of the metal plug.

27. (Currently Amended) A method of removing at least one particle from a surface of a metal plug disposed over a substrate comprising:

depositing a slurry onto a metal layer over the metal plug;

polishing the metal layer; and

after polishing the metal layer, rinsing the surface of the metal plug with a solution consisting essentially of hydrogen peroxide, wherein rinsing is spraying the solution over the surface of the metal plug to drive at least one particle off the surface of the metal plug.

28. (Currently Amended) A method comprising:

polishing a metal layer over a conductive plug with a slurry;

after polishing the metal layer, introducing a rinsing solution onto the conductive plug, the rinsing solution consisting essentially of hydrogen peroxide, wherein the second agent is introduced through a polisher during polishing or sprayed over the surface of the metal plug to drive at least one particle off the surface of the metal plug.